SCS 1201

Data Structures and Algorithms

Assignment – IV

Deadline: 10th August 2020

- Implement a C program for the Page Replacement Algorithm; Least Recently Used (LRU).

  In Operating Systems that use paging for memory management, page replacement algorithms are needed to decide which page needed to be replaced when a new page comes in. Whenever a new page is referred and not present in memory, page fault occurs and Operating System replaces one of the existing pages with newly needed page. Different page replacement algorithms suggest different ways to decide which page to replace. The target for all algorithms is to reduce number of page faults.

  Least Recently Used (LRU) algorithm replaces the least recently used page with the new page.

  Let say the page reference string is 7 0 1 2 0 3 0 4 2 3 0 3 2. Initially we have 4 page slots empty.

  Initially, all slots are empty, so when 7 0 1 2 are allocated to the empty slots —> 4 Page faults

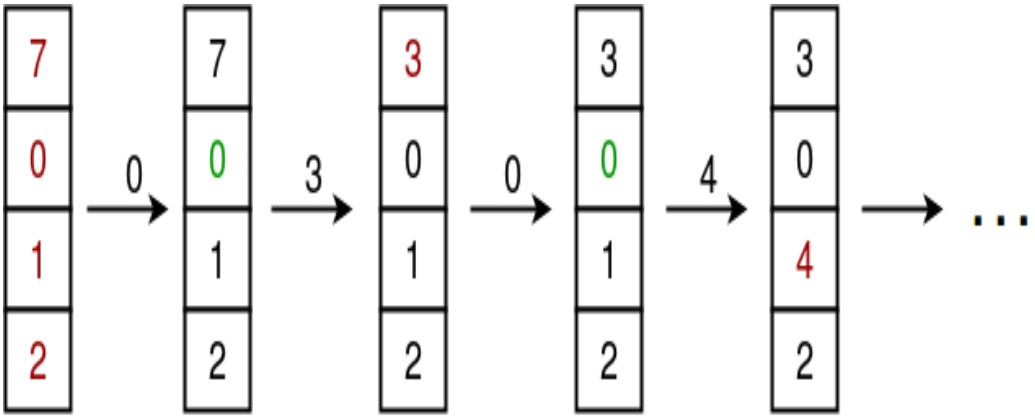
  0 is already there, so —> 0 Page faults.

  When 3 comes it will take the place of 7 because it is the least recently used —>1 Page fault

  0 is already in memory so —> 0 Page fault.

  4 will take place of 1 —> 1 Page Fault

  Now for the further page reference string —> 0 Page fault because they are already available in the memory.



  Implement a program in C using a queue for the LRU page replacement algorithm.

NOTE: Submit the source file named with your index number (Eg:1900XXXX)